



**State of New Hampshire**  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**

6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095  
(603) 271-3406 FAX (603) 271-7894



January 10, 2003  
**Letter of Deficiency**  
DAM #165.05

Mr. Chris Countie  
Pennichuck Water Works  
P.O. Box 448  
4 Water Street  
Nashua, NH 03061-0448

RE: Harris Pond Dam, Nashua

Dear Mr. Countie

The Department of Environmental Services, Dam Bureau (DES) consistently strives to enhance the safety of dams in New Hampshire through its dam safety program. One of the many instruments that play a part in reaching this goal is our inspection program. DES is forwarding this correspondence to you to advise you that in accordance with RSA 482:12 and Env-Wr 502.02, an inspection of the subject dam was conducted on October 10, 2002. During this visual inspection and/or file review, the following deficiencies were observed:

- There is soil erosion along the entire upstream slope of the dam at the water line. The erosion is likely due to wave action;
- 2 There is a good grass cover on most of the upstream slope and crest of the dam. However, there is brush growth on the entire downstream slope and upstream slope to the right of the spillway;
  - 3 It is not known if the peizometers on the dam are monitored on a regular basis;
  - 4 There is minor brush in the discharge channel;
  - 5 There is a diagonal crack in the downstream right concrete wall with efflorescence observed. The crack is located approximately 15 feet from the downstream toe of the embankment;
  - 6 All of the weep holes located along the right downstream reinforced concrete wall were actively flowing with orange bacteria build up present;

There were several small leaks through the downstream face of the stone masonry arch. Some of the leakage is at the contact of the concrete cap and top of the stone masonry section;

- 8 There was orange bacterial on the downstream spillway apron at the toe of the stone masonry arch located approximately 10 feet to the left of the arch center point;
- 9 The downstream side of the concrete spillway piers located to the left of the center of the arch are deteriorated with rebar visible;

10. There is some vegetation growing out of the downstream stone masonry arch underneath the bridge which crossed the discharge channel;
- 11 The PVC toe drain located underneath a rock at the right downstream toe of the dam was actively flowing but had significant sediment at the pipe outfall;
12. The upstream stone masonry wall, located to the left of the spillway is undermined and movement of the cap stones was noticed. This undermining of the wall and movement is likely due to ice action as the area in question is at the waterline;
13. It is unclear if the gate(s) associated with the dam are operable to drain the pond
14. There are misaligned stones at the bottom of the stone masonry arch at the same location as the orange bacteria. It is not known if these stones were placed like this when the dam was built, however, 1989 photos show that this condition existed at that time;
5. The Emergency Action Plan (EAP) has not been tested and updated annually. Please contact Bethann McCarthy at 271-4167 before updating your EAP, for assistance in determining what changes may be necessary; and
16. The operations and maintenance plan (O&M) needs updating.

DES believes that the above deficiencies can be corrected by performing the following items by the indicated schedule:

**March 2003:**

1. Inform DES if the piezometers are monitored on a regular basis. If not, DES suggests amending the O&M to include monthly reading to be recorded;
- 2 Although the weep holes on the downstream right concrete wall are active, the orange bacteria should be cleaned out to ensure they do not plug;
- 3 Remove the sediment and debris from the outfall of the PVC toe drain located under a rock at the downstream right toe;
- 4 Report on the condition of the pond drains and inform DES if there is an operable low level outlet that could be utilized to drain the pond in the event of an emergency;
- 5 Test and update the EAP;
- 6 Update the names and phone numbers on the O&M plan;

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7. Repair the soil erosion along the upstream face of the dam at the water line;
8. Remove brush from the following locations:
  - a. Upstream face of the dam to the right of the spillway;
  - b. Entire downstream slope of both the left and right embankments;
  - c. From the spillway discharge channel;
  - d. From the downstream stone masonry face, especially under the bridge which crosses the discharge channel;
9. Repair the concrete piers associated with the spillway cap where rebar is exposed; and
10. Repair the upstream stone masonry wall, located to the left of the spillway, which is undermined and shows signs of movement of the stone cap.

DES is requesting that you complete and submit the attached "Intent to Complete Repairs" form, within 30 days of receipt of this letter, that will provide for correction of the identified deficiencies by the date(s) indicated above. If you believe changes to the items of work or dates are necessary, please make the changes directly on the form and provide a brief explanation. We have enclosed a self addressed stamped envelope for you to return this form.

Our intent in sending you this correspondence is to make you aware of items that DES believes warrant your attention to insure the continued safe operation of your dam. It is our hope that, through the submittal of the attached form and a commitment to keeping a well-maintained dam, you will voluntarily comply with the requested items of work. If we do not receive the intent form or a similarly adequate written reply, we will assume that you are in agreement with our findings and recommendations and DES will carry out follow-up inspections accordingly.

If you have any questions or comments regarding this Letter of Deficiency or would like to be present at future inspections, please contact me at 271-3406, or write to the Water Division at the address listed on the top of the previous page.

Sincerely,

**COPY**  
Jeffrey M. Blaney  
Dam Safety Engineer

Attachments Copy of O&M on file, DB8, DB13

cc: Gretchen Rule ✓

Bethann McCarthy, P.E., EAP Coordinator

City of Nashua

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